

IN THE CLAIMS:

Please amend Claims 1, 8, 9, and 24 as follows.

1. (Currently Amended) An image processing device for embedding digital watermark information in a gray-scale image or a color image, comprising:

input means for inputting image data;

judging means for judging whether the inputted image data is gray-scale image data in which each pixel is formed of one component or color image data in which each pixel is formed of a plurality of components;

converting means for converting the format of the gray-scale image data into color image data in which each pixel is formed of a plurality of components; and

embedding means for embedding the digital watermark information in part of the components of the color image data obtained by said input means or said converting means.

2. (Original) An image processing device according to claim 1, wherein each pixel in the color image data includes red, green, and blue components.

3. (Original) An image processing device according to claim 1, wherein each pixel in the color image data includes brightness and chrominance components.

4. (Original) An image processing device according to claim 1, wherein each pixel in the color image data includes at least yellow, magenta, and cyan components.

5. (Original) An image processing device according to claim 1, further comprising additional converting means for converting the color image data into other color image data in which each pixel includes brightness and chrominance components.

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6. (Original) An image processing device according to claim 3, further comprising encoding means for compressing and encoding the color image data including the brightness and the chrominance components.

7. (Original) An image processing device according to claim 5, further comprising encoding means for compressing and encoding the color image data including the brightness and the chrominance components.

8. (Currently Amended) An image processing method for embedding digital watermark information in a gray-scale image or a color image, comprising the steps of:

inputting image data;

judging whether the inputted image data is gray-scale image data in which each pixel is formed of one component or color image data in which each pixel is formed of a plurality of components;

converting the format of the gray-scale image data into color image data in which each pixel is formed of a plurality of components; and

embedding the digital watermark information in part of the components of the color image data obtained in said inputting step or in said converting step.

9. (Currently Amended) A storage medium having recorded thereon a computer-readable image processing program for embedding digital watermark information in a gray-scale image or a color image, said program comprising:

an inputting step of inputting image data;

a judging step of judging whether the inputted image data is gray-scale image data in which each pixel is formed of one component or color image data in which each pixel is formed of a plurality of components;

a converting step of converting the format of the gray-scale image data into color image data in which each pixel is formed of a plurality of components; and

an embedding step of embedding the digital watermark information in part of the components of the color image data obtained in said inputting step or in said converting step.

10. (Original) An image processing device according to claim 2, wherein said embedding means embeds the digital watermark information in the blue component.

11. (Original) An image processing device according to claim 3, wherein said embedding means embeds the digital watermark information in the chrominance component.

12. (Original) An image processing device according to claim 1, wherein said embedding means embeds a part of the digital watermark information in a part of the color image data in such a manner that the overall gray level of the image is not changed.

13. (Original) An image processing device according to claim 7, wherein said embedding means embeds the digital watermark information in a manner such that the information is not lost when said encoding means compresses and encodes the color image data.

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14. (Original) An image processing method according to claim 8, wherein said converting step comprises converting the format of the gray-scale image data into color image data in which each pixel includes red, green, and blue components.

15. (Original) An image processing method according to claim 14, wherein said embedding step comprises embedding the digital watermark information in the blue component.

16. (Original) An image processing method according to claim 8, wherein said converting step comprises converting the format of the gray-scale image data into color image data in which each pixel includes brightness and chrominance components.

17. (Original) An image processing method according to claim 16, wherein said embedding step comprises embedding the digital watermark information in the chrominance component.

18. (Original) An image processing method according to claim 8, wherein said embedding step comprises embedding the digital watermark information in such a manner that the overall gray level of the image does not change.

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19. (Original) A storage medium according to claim 9, wherein said converting step comprises converting the format of the gray-scale image data into color image data in which each pixel includes red, green, and blue components.

20. (Original) A storage medium according to claim 19, wherein said embedding step comprises embedding the digital watermark information in the blue component.

21. (Original) A storage medium according to claim 9, wherein said converting step comprises converting the format of the gray-scale image data into color image data in which each pixel includes brightness and chrominance components.

22. (Original) A storage medium according to claim 21, wherein said embedding step comprises embedding the digital watermark information in the chrominance component.

23. (Original) A storage medium according to claim 9, wherein said embedding step comprises embedding the digital watermark information in such a manner that the overall gray level of the image does not change.

24. (Currently Amended) An image processing device for embedding digital watermark information in a gray-scale image or a color image, comprising:

an input device that inputs image data into said image processing device;

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a judging device that judges whether the inputted image data is gray-scale image data in which ~~into said image processing device, wherein~~ each pixel is formed of one component or color image data in which each pixel is formed of a plurality of components;

a color converter that converts the gray-scale image data into color image data in which each pixel is formed of a plurality of components;

a color component extracting unit that separates a part of the plurality of components from the remaining components of the color image data obtained by said input device or said color converter; and

an embedding unit that adds the digital watermark information to the part of the plurality of components separated by said color component extracting unit.

25. (Original) An image processing device according to claim 24, further comprising:

a color component synthesizer for recombining the part of the plurality of components to which the digital watermark information is added with the remaining components of the color image data.

26. (Original) An image processing device according to claim 24, wherein said color converter converts the gray-scale image data to a format where each pixel includes red, green, and blue components.

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27. (Original) An image processing device according to claim 26, wherein said color component extracting unit extracts the blue component and said embedding unit adds the digital watermark information to the blue component.

28. (Original) An image processing device according to claim 24, wherein said color converter converts the gray-scale image data to a format where each pixel includes brightness and chrominance components.

29. (Original) An image processing device according to claim 28, wherein said color component extracting unit extracts at least a part of the chrominance component and said embedding unit adds the digital watermark information to the extracted part of the chrominance component.

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30. (Original) An image processing device according to claim 28, further

comprising an encoder that compresses and encodes the color image data including the

brightness and chrominance components.
